KHAZANOVICH, T.N.

Theory of the nuclear magnetic relaxation in liquid phase
polymers. Vysokom.soed. 5 no.1:112-119 Ja '63.   (MIRA 16:1)

1. Institut khimicheskoy fiziki AN SSSR.
(Polymers)
(Nuclear magnetic resonance and relaxation)

KORST, N.N.; KHAZANOVICH, T.N.

Relaxation and shape of the paramagnetic resonance line in
highly viscous media. Zhur. eksp. i teor. fiz. 45 no.5:1523-
1534 N '63.   (MIRA 17:1)

1. Institut khimicheskoy fiziki AN SSSR.

YAVORSKIY, Boris Mikhaylovich; DETLAF, Andrey Antonovich.
      Prinimali uchastiye: KHAZANOVICH, T.N.; PANOVKO,
      Ya.G.; GUROV, K.P., red.

      [Physics handbook for engineers and students of institutes
      of higher learning] Spravochnik po fizike dlia inzhenerov
      i studentov vuzov. Izd. 2., ispr. Moskva, Nauka, 1964.
      847 p.   (MIRA 17:12)

KHAZANOVICH, T.N. (Moskva)

     Derivation of equations of linear viscoelasticity. Prikl. mat.
1 mekh. 28 no.6:1123-1126 N-D '64.   (MIRA 18:2)

ACCESSION NR: AP4042024

S/0020/64/157/001/0165/0167

AUTHOR: Khazanovich, T. N.

TITLE: On thermal diffusion in dilute solutions of polymers

SOURCE: AN SSSR. Doklady*, v. 157, no. 1, 1964, 165-167

TOPIC TAGS: polymer chain, thermal diffusion, polymer rheology
Markov process, Brownian motion mechanics

ABSTRACT: It is shown that thermal diffusion in polymer solutions is
greatly affected by the flexibility of the polymer chain, a fact not
taken into account in earlier attempts at a molecular theory of such
thermal diffusion.   The model of beads and springs, introduced by
V. A. Kargin and G. L. Slonimskiy (ZhFKh v. 23, no. 5, 563, 1949) is
used and it is assumed that the Brownian motion of the beads in the
temperature field is a Markov process for which an Einstein-Fokker-
Planck equation exists.   Such an equation is formulated and solved

Card   1/2

ACCESSION NR: AP4042024

for a chain consisting of $\underline{n}$ beads and it is shown that the flexibility of the polymer chain greatly increases the coefficient for thermal diffusion. The increase is attributed to the force acting on some parts of the chain and directed toward the cold wall when the mobility of other parts of the chain, which are in the region with larger viscosity, is decreased. It is pointed out that experimental data on the coefficient of thermal diffusion are contradictory because of the complications arising in practical measurements. "The author is grateful to Professor N. D. Sokolov for a discussion of the results." Orig. art. has: 8 formulas.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences SSSR)

SUBMITTED: 16Jan64

SUB CODE: OC   NR REF SOV: 005   ENCL: 00

Card   2/2   OTHER: 010

TABAKHAN, O.B., inzh.; KHAZANOVICH, Ye.D., inzh.

Operating modes of the excitation units during excitation forcing. Prom. energ. 21 no.1:16-18 Ja '66 (MIRA 19:1)

KHAZANOVICH, Yuriy (Sverdlovsk).

Through the Urals; conclusion. Nauka i zhizn' 24 no.3:31-35
Mr '57.   (MLRA 10:5)
        (Ural Mountain region--Machinery industry)

KHAZANSKAYA, P.M., inzh.; VASIL'YEVA, N.R., red.; YEREMEYEVA, L.A.,
tekhn. red.

[Experience in the construction and use of oil ports and bunker
storage in sea ports of foreign countries] Opyt stroitel'stva
i ekspluatatsii neftegavanei i bunkerovochnykh baz zarubezhnykh
morskikh portov. Moskva, Otdel nauchno-tekhn. informatsii.
Pt.2. [Oil ports in foreign countries] Neftianye porty za ru-
bezhom; obzor literatury. 1962. 191 p.   (MIRA 16:4)

1. Gosudarstvennyy proyektno-konstruktorskiy i nauchno-
issledovatel'skiy institut morskogo transporta.
                    (Petroleum--Storage)

ZHILYAKOVA, A.Ya.; LUCHKOVSKIY, I.Ya.; KHAZANOVSKIY, I.S.

Design of a precast reinforced concrete element for dump
cars. Biul. stroi. tekh. 20 no.10:45-0 '63.   (MIRA 16:11)

1. Khar'kovskiy gosudarstvennyy institut po proyektirovaniyu
promyshlennogo stroitel'stva. 2. Starshiy inzh. Khar'kovskogo
gosudarstvennogo instituta po proyektirovaniyu promyshlennogo
stroitel'stva (for Luchkovskiy). 3. Glavnyy arkhitektor tekhni-
cheskogo otdela Khar'kovskogo gosudarstvennogo instituta po
proyektirovaniyu promyshlennogo stroitel'stva (for Khazanovskiy).

PEREPADA, L.F.; KHAZANOVSKIY, I.S., arkhitektor

Cupola roofing of radial thickeners. Biul. stroi. tekh. 20 no.10:
43-44 O '63.   (MIRA 16:11)

GONCHARUK, A.I., arkhitektor; KHAZANOVSKIY, I.S., arkhitektor; SHVETS, N.A.,
     inzh.

Problems in designing industrial enterprises in the southern
regions of the U.S.S.R. Prom. stroi. 37 no.9:49-52 S '59.
                                             (MIRA 13:1)
          (Russia, Southern--Factories--Design and construction)

FEDOTOV, I.I., inzh.; SHUVALOV, N.G., inzh.; ZADNEPROVSKIY, I.Z., inzh.;
    KHAZANOVSKIY, P.M., inzh.; SLOMCHINSKIY, V.V., inzh.

New method for saturating and drying the stator windings of
asynchronous electric motors. Vest. elektroprom, 32 no.4:28-31
Ap '61.   (MIRA 15:5)
        (Electric motors, Induction--Windings)

FEDOTOV, I.I., inzh.; GUR'YEV, G.M., inzh.; PETRULENKO, V.Ye., inzh.;
    KHAZANOVSKIY, P.M., inzh.

Saturation and drying of the windings of asynchronous motors.
Vest. elektroprom. 33 no.10:71   O '62.   (MIRA 15:9)
            (Electric motors, Induction—Drying)

IVANOVA, Z.G.; DAVYDOV, A.B.; Prinimali uchastiye: KISELEVA, M.Ye.;
KUZ'MINA, I.I.; KHAZANSKAYA, R.G.; SMELLI, T.B.

Thermostable organosilicon adhesives VK-2 and VK-6. Plast.massy no.4:
37-39 '63.   (MIRA 16:4)
(Adhesives—Thermal properties)   (Silicon organic compounds)

KHAZANSKIY, D,

ALEKSEYEV, I., inzhener; KHAZANSKIY, D., inzhener.

Discharge conduit made of precast reinforced concrete. Stroitel'
no.8:20-21 Ag '57.   (MIRA 10:9)
            (Concrete conduits)   (Precast concrete construction)

KHAZANSKIY, V.

KHAZANSKIY,V.

Constructors of machine tools. Rab. i sial.31 no.8:6-7 Ag'55.
(MLRA 8:11)

(Vitebsk--Machine-tool industry)

KHAZANOVICH, Yu.

AUTHOR: Khazanovich, Yu. (Sverdlovsk)   25-12-20/39

TITLE: The Road of an Engineer (Put' inzhenera)

PERIODICAL: Nauka i Zhizn', 1957, # 12, pp. 30-32 (USSR)

ABSTRACT: The author describes the life of Georgiy Lukich Khimich,
who went to Sverdlovsk in 1929, and became a well-known engineer
at the Sverdlovsk metallurgical plant "Uralmash". Khimich in-
troduced modern production methods at the Sverdlovsk rolling mill,
and was in charge of the construction of the metallurgical combine
to be built at Bkhilan (India), completion of which is scheduled
in 1959.
             There are 3 figures.

AVAILABLE: Library of Congress

Card 1/1

KLEBANOV, G.B., inzh.; KHAZANSKIY, S.A., inzh.

 T-108 crawler tractor for industrial purposes. Trakt. i
 sel'khozmash. 31 no.11:4-5 N '61.   (MIRA 14:12)

 1. Chelyabinskiy traktornyy zavod.
      (Crawler tractors)

ANSHELES, I.M.; FRIDMAN, E.A.; STENINA, Ye.S.; KLUSHINA, T.A.; TARASOVA,
Ye.F.; KHAZANSON, L.B.

Epidemiological and virological characteristics of the influenza
pandemic of 1957 in Leningrad. Trudy Len.inst.epid.i mikrobiol.
17:66-77 '58.   (MIRA 16:2)

1. Iz sektora epidemiologii (zav. I.M. Ansheles) i laboratorii
grippa (zav. E.A. Fridman) Leningradskogo instituta epidemiologii,
mikrobiologii i gigiyeny imeni Pastera, Gorodskoy sanitarno-
epidemiologicheskoy stantsii i Protivogrippoznogo kabineta 39-y
polikliniki Dzerzhinskogo rayona, Leningrada.
                    (LENINGRAD—INFLUENZA)

POTEMKIN, P.S.; SHUMILIN, A.A.; KURDIANI, G.P.; KHAZARADZE, M.I.;
      TYRTYSHNYY, A.Ye.

      Firing Dankov dolomites in rotary kilns. Ogneupory 28 no.9:
      389-392 '63.   (MIRA 16:10)

      1. Vsesoyuznyy institut ogneuporov (for Potemkin, Shumilin).
      2. Rustavskiy metallurgicheskiy zavod (for Kurdiani, Khazaradze).
      3. Dankovskiy dolomitovyy kombinat (for Tyrtyshnyy).

L 4484-66   ENT(m)/FCC/1   IJP(c)

ACC NR: AP5024634   SOURCE CODE: UR/0048/65/029/009/1686/1689

..., Karazov, V.A., Khazaradze, N.G., Burduli, A.V. Gedevanishvili, L.D.,
..., ... Poneznev, M.Kh., Sakvarelidze, I.I.

ORG: none

TITLE: Fluctuations in the lateral distribution of muons in extensive air showers
... ... Conference on Cosmic Ray Physics held at Apatity 24-31 August 1964

... ...

secondary cosmic ray muon ...

ABSTRACT.   The authors have investigated ... lateral distribution of penetrating pa...
... extensive air ...

AP   46.14

total   number of particles ranging from 5×10^4 to 5×10^6 are tabulated.   The lateral

distance between the two   is in good agree-
ment found by   .Gedevanishvili. and I   chokushenova AN

   In conclusion   express their gratitude to

   rishvili, and I.   Khali   with the work

   formula and 3 figures

     SUBM DATE: 00   ORIG AFF.   1   JTH 0 8   001

Card   2/2

TSERETELI, D.; INASHVILI, Sh.; KALANDADZE, G.; KURDGELAIDZE, G.;
    LASHKHI, T.; LOMTATIDZE, G.; KHAZARADZE, R.

    Observations of the Chalaati and Lekhzyri glaciers in the
    summer of 1959. Trudy Inst. geog. AN Gruz. SSR 17:223-256 '62.
                                                    (MIRA 16:7)
              (Inguri Valley—Glaciers)

KHAZARADZE, R.D.; LOMTATIDZE, G.V.

Morphology and the morainic deposits of the Adishi Glacier.
Trudy Inst. geog. AN Gruz. SSR 20:253-264 '64.

(MIRA 18:5)

KHAZARADZE, R.Ye., nauchnyy sotrudnik

Data for determining the permissible concentration of manganese
(bibalen and tetravalent) in the water of reservoirs. Gig.i san.
26 no.12:8-14 D '61.   (MIRA 15:9)

1. Iz Nauchno-issledovatel'skogo instituta sanitarii i gigiyeny
Ministerstva zdravookhraneniya Gruzinskoy SSR.
                  (WATER--POLLUTION)   (MANGANESE)

KHAZAPADZE, W. P.

Khazaradze, E. P. "Data dealing with the study of crop diseases in the dry subtropics of the Georgian SSR;" (The results of the study conducted in planting the fig, pomegranate, almond and pictachio nut in 1939-1940) Trudy In ta zashchity rasteniy (Akad. nauk Gruz. SSR), Vol. V, 1948, p. 103-16 (In Georgian, resume in Russian), - Bibliog: 7 items

SO: U-4934, 29 Oct 53, (Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

KHAZARADZE, Ye. P.

Khazaradze, Ye. P. "Potato diseases in the Georgian SSR," Trudy In-ta zashchity rasteniy, (Akad. nauk Gruz. SSR), Vol. V, 1948, p. 249-62, (In Georgian, resume in Russian),
- Bibliog: 11 items

SO: U-4934, 29 Oct 53, 'Letopis 'Zhurnal 'nykh Statey, No. 16, 1949).

1. KHAZARADZE, YE. P., TSAKADZE, T. A.

2. USSR (600)

7. "Black Canker of the Apple Tree and Measures for Combatting It", Trudy In-ta Zashchity Rasteniy AN Gruz. SSR (Works of the Institute of Plant Protection, Acad Sci Georgian SSR), Vol 7, 1950, pp 107-124.

9. Mikrobiologiya, Vol XXI, Issue 1, Moscow, Jan-Feb 1952, pp 121-132. Unclassified.

KHAZARADZE, Ye.P.

Cancer of the pomegranate root neck in Georgia caused by the fungus
Zythia versoniana Sacc. Soob.AN Gruz.SSR 17 no.1:39-43 '56.
(MLRA 9:8)

1. Akademiya nauk Gruzinskoy SSR, Institut zashchity rasteniy,
Tbilisi. Predstavleno deystvitel'nym chlenom Akademii L.A.
Kanchaveli.

(Pomegranate)

USSR/Plant Diseases. Diseases of Cultivated Plants   O-3

Abs Jour : Ref Zhur - Biol., No 20, 1958, No 91999

Author   : Khazaradze Ye.P.
Inst   : Inst. of Plant Protection AS Georgian SSR
Title   : Phomopsis diaspyri Bong., the Cause of Persimmon Canker in
           the Georgian SSR

Orig Pub : Tr. In-ta zashchity rast. AN GruzSSR, 1957, 12, 153-175

Abstract : Persimmon suffers considerably from the canker (Ph. diospyri.)
           in the humid subtropics of Georgia. The fungus produces dry
           rot in the settings and the fruit. It also causes withering
           of the branches. Small black blotches or pycnids appear on
           the fruit and in the calyx. The bells of the fallen fruit
           remain on the tree and become sources of infection. The in-
           fection of the fruit-bearing branches takes place through
           the fruit stem. On the perennial branches and sometimes on
           the stems, canker injuries in the form of depressed stains with
           1-2 longitudinal cracks were noticed. The branches become
           deformed, their growth is retarded and sometimes they wither.
Card   : 1/2

USSR/Plant Diseases. Diseases of Cultivated Plants   O-3
Abs Jour : Ref Zhur - Biol., No 20, 1958, No 91999

           Infection and withering of poorly united grafted seedlings
           was observed in nurseries. The fungus is seldom encountered
           on leaves. When it appears on leaves it produces brown spots
           along the edges. The first appearance of the disease begins
           in May on the settings and young fruit. The development of the
           agent in pure culture take place at a temperature of 7-33°.
           Good results in controlling this disease were obtained by
           using 10 percent solution of tetramethyl thiuram disulfide
           and 1 percent Bordeaux solution. Spraying schedules and
           agrotechnical and prophylactic measures are given. -- Ye.S.
                                                           Artyunyan

Card   : 2/2

KHAZARDZHYAN, A.

      Apparatus for skinning pigs. Mias. ind. SSSR 24 no.5:60 '53.
                                                 (MLRA 6:12)

    1. Yerevanskiy myasokombinat.
        (Hides and skins) (Slaughtering and slaughter houses)

KHAZAROV, Ya. G.

1454. KHAZAROFF Ya.G. Med.Inst., Kuban.* Prophylaxis and operative treatment of symblepharon by means of a caoutchouc interlayer (Russian text) VESTN.OFTAL. 1956, 2 (28-30) Tables 1 Illus. 2

A procedure is described for the prevention of symblepharon in cases of thermal or chemical burns of the conjunctiva. A small semilunar piece of caoutchouc cut out of a surgical glove is placed between the burnt surfaces of the palpebral and bulbar conjunctiva. The strip of rubber is kept in place by a single mattress suture stitched from the fornix through the eyelid and tied on the skin-surface over a pad. The strip is removed after 6 days. The same method is followed in operations against already existing symblepharon. After separation of the lid from the bulbus the strip is placed between these two in the same way as described above. During the 6 days in which the strip lies between the separated surfaces these are covered with epithelium and the motility of the eye is restored.   De Haas, - Arnhem

I z Kliniki Glaznykh Bolezney Kubanskogo medinstituta.

TUMANOV, G., gornyy inzh.; KHAZARYAN, L., gornyy inzh.

New equipment and technological processes in blasthole drilling at
the lime quarries of the Ararat Cement and Slate Works. Prom.Arm.
6 no.7:33-38 Jl '63.   (MIRA 16:9)

1. Armyanskoye spetsial'noye upravleniye po proizvodstvu burovzryv-
nykh rabot.

28 (1)
AUTHOR: Khazatskiy, V. Ye., Engineer   SOV/119-59-6-2/18

TITLE: Ferrite-Transistor Elements for Remote Control Instruments
             (Ferrit-tranzistornyye elementy dlya ustroystv teleupravleniya)

PERIODICAL: Priborostroyeniye, 1959, Nr 6, pp 5 - 7 (USSR)

ABSTRACT: This is a report on the utilization of ferrites with rectangular
             hysteresis loop in circuit diagrams, the initial element of which
             is a transistor. In the Institute mentioned in the Association
             an investigation is carried out of the practical application of
             such ferrite-transistor circuits for industrial remote-control
             switches. The working principle of this circuit is described in
             figure 1. Figure 2 shows the dependence of the pulse duration on
             the number of the base windings, which is important for the case
             that the telemechanical switching mechanism contains inert ele-
             ments, such as relays, magnetic amplifiers, etc. Figure 3 shows
             the dependence of the voltage amplitude at the triode base on
             the loading resistance of a collector circuit. Figure 4 depicts
             a pulse transformer. The diagram of a dynamic trigger is shown
             in figure 5. The dynamic trigger with ferrite-transistor element
             may very advantageously replace the magnetic amplifiers in the
Card 1/2   relay because of its quick action, its small bulk and its low

Ferrite-Transistor Elements for Remote Control   SOV/119-59-6-2/18
Instruments

cost. Figure 6 shows the circuit of a dynamic trigger with a
triode. The circuit diagram in figure 7 may be applied for log-
ical operations in contact-free remote control; it is a combi-
nation of a ferrite-transistor memory cell with a pulse trans-
former. Figure 8 shows the circuit diagram of a two-stroke pulse
distributor, and in addition thereto (Fig 9) the diagram of cur-
rents and voltages. This distributor has stood its test in volt-
age oscillations of $\pm$ 50% and at temperatures of up to $60°$. On
the basis of the circuit elements described, various types of
remote-control systems were worked out in the Association in the
years 1957 - 1958; among them, types required for municipal gas-
works. There are 9 figures and 5 references, 3 of which are
Soviet.

Card 2/2

ACC NR: AP6034050   SOURCE CODE: UR/0103/66/000/010/0175/0181

AUTHOR: Khazatskiy, V. Ye. (Moscow)

ORG: none

TITLE: Difference method of coding

SOURCE: Avtomatika i telemekhanika, no. 10, 1966, 175-181

TOPIC TAGS: signal coding, communication coding, information transmission

ABSTRACT: A difference method of coding is considered in which the differences between consecutive numbers of messages are coded. At the receiving end, the codes are summed up in sequence, and the summation result is decoded. Signal shaping in a multichannel transmission system (such as a supervisory control) is examined. The probability of incorrect code formation is analyzed. A block diagram realizing transmission and reception of difference codes is shown. It is claimed that the difference coding method will be most efficient in those cases where the number of commands or signals sent within one cycle varies widely. However, the delay time will vary with varying numbers of commands, which is held as a disadvantage of the difference-coding method. Orig. art. has: 3 figures and 20 formulas.

SUB CODE: 17, 09 / SUBM DATE: 13Apr66 / ORIG REF: 002

Card 1/1   UDC: 621.391.152

6, 7800

28.1000   1068, 1089

22732

S/119/61/000/004/002/005
B104/B205

AUTHOR: Khazatskiy, V.Ye., Engineer

TITLE: Unified contactless remote control and remote signaling sys-
             tem of type БТЦУ -1/10 (BTTsU-1/10)

PERIODICAL: Priborostroyeniye, no. 4, 1961, 15-18

TEXT: A series of contactless remote control and remote signaling systems
of the type БТЦ (BTTs), designed for the telemechanization of industrial
establishments, has been developed by TsNIIKA in cooperation with SKB Pri-
bor (Special Design Office for Instruments) and Orlovskiy zavod priborov
(Orlov Instrument Factory). This series is manufactured in three types:
1) A contactless remote control and remote signaling device of the
type БТЦ -1/1 (BTTs-1/1) by which one slave mechanism is controlled from
one dispatcher point. Ten to sixty objects can be controlled and super-
vised by it. 2) A contactless remote control and remote signaling device
of the type БТЦ -1/10 (BTTs-1/10) which is used to control up to ten slave
mechanisms from one dispatcher point. Each slave mechanism is connected to
the dispatcher point by a radial communication channel; all slave mecha-

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Unified contactless ...

S/119/61/000/004/002/005
B104/B205

nisms have the same power as the one used for type BTTs-1/1. 3) A unified
contactless remote control and remote signaling system of the type
БТЦУ -1/10 (BTTsU-1/10) which controls up to ten slave mechanisms from one
dispatcher point; its communication channels may have any design and can
be supplied by both synchronous and non-synchronous sources. Here, only the
last-mentioned system is described in detail. It is designed according to
the principle of selectivity. The selection of points and their interro-
gation for the existence of information is done in a cyclic manner, using
the pulse interval method. The system permits the following operations:
a) remote control of objects having two positions;b)signaling of the ex-
istence of information at any slave point; c) automatic communication with
points at which information exists (type I) or signaling through a tele-
phone (type II); d) continuous signaling of the state of all controlled ob-
jects when the dispatcher is connected with the slave; e) interrogation
and response of any slave mechanisms. It is possible to connect 10-40 two-
position objects to each slave mechanism.. For ten slave points, interro-
gation takes 0.2-0.5 sec. The two types of the BTTsU-1/10 system are
thoroughly described with the aid of the accompanying figures. There are
5 figures and 4 references: 3 Soviet-bloc and 1 non-Soviet-bloc.
Card 2/6

ACCESSION NR: AP4042497   S/0103/64/025/007/1114/1121

AUTHOR: Khazatskiy, V. Ye. (Moscow)

TITLE: Problem of structural reliability of remote-control systems

SOURCE: Avtomatika i telemekhanika, v. 25, no. 7, 1964, 1114-1121

TOPIC TAGS: remote control, automatic control, remote control reliability

ABSTRACT: A method of evaluating the reliability of single- and multi-channel
remote-control systems is considered; two multi-channel systems, with time-
and with frequency-division of signals, are used as examples. It is shown that
the system reliability can be increased by duplicating the ties between various
components by means of a "cross" distributor. The probability of failure for a
conventional distributor is given by:

$$q_p = q_1 + q_2 + q_3 + \cdots + q_n,$$

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ACCESSION NR: AP4042497

$$q_{np} = \frac{2}{n} q_2 + \frac{(n-2)^3}{C_n^3} q_3 + \cdots,$$

where C_n^3 is the total number of triple faults. Encoder and decoder schemes
which include the "cross" distributors are briefly described. Orig. art. has:
6 figures and 13 formulas.

ASSOCIATION: none

SUBMITTED: 04Mar63

SUB CODE: NG, IE   NO REF SOV: 004

ENCL: 00

OTHER: 000

Card 2/2

TUMANOV, G., inzh.; KHAZARYAN, L., inzh.

Using blasting techniques in recovering building tuffs. Prom.
Arm. 6 no.1:50-53 Ja '63.   (MIRA 16:4)

1. Armspetsupravleniye po proizvodstvu burovzryvnykh rabot.
          (Armenia—Volcanic ash, tuff, etc.)

KHAZE

POLAND/Optics - Optical Engineering.

K-4

Abs Jour   : Referat Zhur - Fizika, No 3, 1957, 06

Author   : Khaze.
Inst   :
Title   : Crystals in Instrumental Optics

Orig Pub   : Pomiary, Automatyka, kontrola, 1956, 1, No 6, 221-226

Abstract   : Popular article.

Card 1/1   - 10 -

A005/A130

AUTHORS: Ayzu, Kh., Fudzhimoto, I., Khazegava, S., Koshiba, M.,
             Mito, I., Nishimura, Dzh., Iokon, K., Shayn, M.

TITLE: Primary cosmic radiation at Prince Albert, Canada

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 6, 1961, 12, abstract
             6G83. (Tr., Mezhdunar. konferentsii po kosmich. lucham, 1959,
             T. 3. Moscow, AN SSSR, 1960, 110-115)

TEXT: The authors analyzed data from the recording of heavy nuclei
of primary cosmic radiation. The measurements were conducted or September
11, 1957 with the aid of a photoemulsion pile at an altitude of 36 km
(geomagnetic latitude 62°N). Differential energy spectra were obtained
of α-particles, nucleus groups C, N, O; F - Si; P - Fe, and Li, Be and B
in the energy range from 150 to 800 Mev/nucleon. The shapes of the spectra
for all groups except Li, Be and B were the same. The streams of Li-, Be-
and B-nuclei evince a pronounced increase of intensity (relative to the
C, N and O groups) at energies of 300-700 Mev/nucleon. Analysis of the

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S/169/61/000/006/033/??9
Primary cosmic radiation at Prince Albert, Canada A005/A130

fragmentation probability of the heavy nuclei as a function of energy
shows that the relative increase in quantity of the light nuclei is due
to an increase in the quantity of matter permeable to heavy $(Z \geqslant 6)$ low
energy nuclei. Therefore the authors conclude that the mechanism of Fermi
acceleration is not very effective in interstellar space for low energies;
the most probable origin of cosmic rays is in Supernovae with their sub-
sequent diffusion throughout the Galaxy. The authors examine the question
of the relative abundance of different elements in primary radiation.
They show that a number of peculiarities detected in the high energy range
are also observed at energies $\lesssim 700$ Mev/nucleon. Owing to the fact that
no antiparticle whatsoever was detected, the value 0.1% was obtained for
the upper limit of the amount of antimatter in primary cosmic radiation.

N. Kaminer

[Abstractor's note: Complete translation.]

Card 2/2

SMIRNOV, M.V.; KRASNOV, Yu.N.; KHAZEMOV, F.F.

Reaction of lanthanum tichloride with a molten eutectic mixture
of lithium and potassium chlorides. Trudy Inst. elektrokhim.
RFAN SSSR no.5:53-60 '64.

(MIRA 18:2)

... mix-

... Elektrok-

L 10881-66

AT5029238

$$\lg K_1 = \lg \frac{[La^{3+}][F^-]}{[LaF^{2+}]}$$

$$\lg K_2 = \lg$$

$$\lg K_3 = \lg \frac{[La^{3+}][F^-]}{[LaF_3]} = -2.503 - \frac{a.u}{T}$$

...ns derived for their successive dissociation are:

$$\lg K' = \lg \frac{[LaF_2^+][F^-]}{[LaF_3]} = -0.230 - \frac{}{T}$$

$$\lg K'' = \lg \frac{[LaF^{2+}][F^-]}{[LaF_2^+]} = -0.732 - \frac{}{}$$

L 10881-66

ACC NR   AT5028238

...a chlorine reference electrode.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 005

Card   3/3

SKIBA, O.V.; SMIRNOV, M.V.; KHAZEMOVA, T.F.

Diffusion coefficients of U^3, U^4, and UO_2 ions in fused NaCl - KCl. Trudy Inst.elektrokhim. UFAN SSSR no. 4:11-15 '63.   (MIRA 17:6)
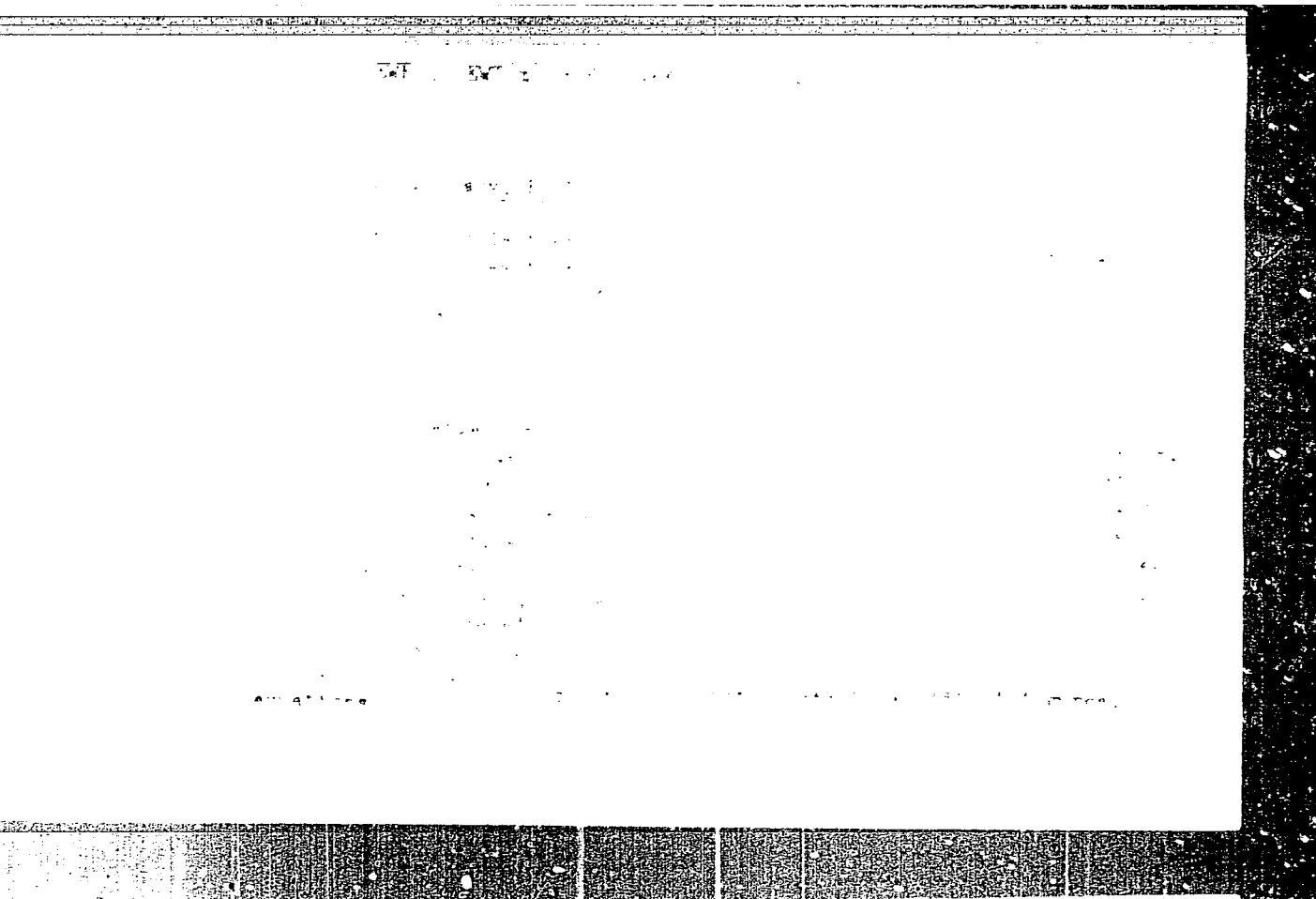
SMIRNOV, M.V.; USOV, P.M.; KHAZEMOVA, T.F.

    Melting diagram of the La - LaCl system. Trudy Inst. elektrokhim.
UFAN SSSR no.5:119-122 '64.   (MIRA 18:2)

'L 42157-66   EWT(m)/T/EWP(t)/ETI   IJP(c)   DS/WW/JD/JG/GD

| ACC NR: AT6022482   (A)   SOURCE CODE: UR/0000/65/000/000/0254/0257 |

AUTHOR: Smirnov, M. V.; Usov, P. M.; Krasnov, Yu. N.; Khazemova, T. F.

ORG: Institute of Electrochemistry, UFAN SSSR (Institut elektrokhimii UFAN SSSR)

TITLE: Reaction of metallic lanthanum with its trichloride

SOURCE: Vsesoyuznoye soveshchaniye po fizicheskoy khimii rasplavlennykh soley. 2d,
Kiev, 1963. Fizicheskaya khimiya rasplavlennykh soley (Physical chemistry of fused
salts); trudy soveshchaniya. Moscow, Izd-vo Metallurgiya, 1965, 254-257.

TOPIC TAGS: lanthanum, chloride, electrolysis, TRICHLORIDE, CHEMICAL
REACTION, EMF

ABSTRACT: The emf method was used to study the reaction of La with $LaCl_3$ and solutions
of $LaCl_3$ in the fused eutectic mixture LiCl-KCl in order to determine whether compounds
of lanthanum of lower oxidation states exist, and if so, what part they play in the
electrolysis of La in fused salt media. The phase diagram of the $LaCl_3$-La system was
determined experimentally in the range from the pure trichloride to the product of its
saturation with metallic La. The emf of galvanic concentration cells composed of two
cells (liquid La in molten $LaCl_3$ saturated with La, and Mo immersed in molten $LaCl_3$
containing 0.35-23/4 mole % dissolved La) at 850-1000 °C showed that the dissolution of
La in the trichloride involves its reduction to the di- or monochloride. Emf isotherms
plotted from experimental points were similar to those which should be expected for
electrolytes made up of a mixture of $LaCl_3$ and $LaCl_2$. It is concluded that metallic La

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ACC NR: AT6022482   2

partially reduces $LaCl_3$ to the dichloride; the latter is unstable, and can exist only in fused mixtures with the trichloride in contact with the metal in amounts of no more than 86 mole %. Upon solidification of the fused salt mixtures, the dichloride decomposes into the metal and the trichloride. By strengthening the La^{3+}-Cl^- bonds, the introduction of alkali metal chlorides into the melt stabilizes the trichloride to such a degree that it can no longer be reduced to the dichloride by the metal. For this reason, the electrolysis of La in fused alkali metal chlorides is not associated with the formation of La ions of a lower oxidation state in the electrolyte. Orig. art. has 3 figures.

SUB CODE: 07/ SUBM DATE: 23Aug65

Card 2/2

AUTHOR: Khazen, A. M.

TITLE: The Application of the Glow Discharge to the Measurement of the
Turbulent Velocity Pulsations of an Air Flow (Primeneniye tleyu-
shchego razryada dlya izmereniya turbulentnykh pul'satsiy skorosti
vozdushnogo potoka)

PERIODICAL: Sb. statey nauch.-stud. o-va Mosk. energ. in-ta, 1956, Nr 9,
pp 163-172

ABSTRACT: The paper gives the description of a hot-wire anemometer based on
the principle of a glow discharge between platinum electrodes. A
schematic diagram of the setup is adduced. The paper refers to the
possibility of using the above-mentioned instrument for the registra-
tion of the velocity pulsations as well as for the measurement of the
root-mean-square deviation and the frequency spectrum. At the
present stage of investigation the author, unfortunately, recommends
his setup for qualitative investigations only. Descriptions of a hot-
wire anemometer with a glow discharge have already appeared
earlier (Lindvall, C., Electr. Engng., 1934, Nr 7, Zakharov, Yu. G.,

Card 1/2

SOV/124-57-3-3316
The Application of the Glow Discharge to the Measurement of the Turbulent (cont.)

Tr. TsAGI, 1946, Nr 599, et al.), but to date no quantitative results have been obtained therewith. Bibliography: 6 references.

Ye. M. Minskiy

Card 2/2

SOV/124-58-7-7767

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 65 (USSR)

AUTHORS: Khazen, A.M.

TITLE: A Universal Device for the Investigation of Turbulence and
           Nonstationary Gas Flows (Universal'nyy pribor dlya issledo-
           vaniya turbulentnosti i nestatsionarnykh gazovykh potokov)

PERIODICAL: Sb. statey nauchn. stud. o-va Mosk. energ. in-ta, 1957, Nr
             10, pp 53-71

ABSTRACT: A description of an installation for measuring the intensity
             of turbulence by means of a glow-discharge is made. The
             glow-discharge method for measuring turbulence has been pro-
             posed several times previously (Lindvall C., Electr. Engng.,
             1937, Nr 7; Yu.G. Zakharov, Zh. tekhn. fiz., 1939, Vol 9, Nr
             21) but until now has not found acceptance in view of the insuf-
             ficient stability of its characteristics. The theory of the de-
             vice is given and the stability conditions of the discharge are
             analyzed. A description of the device constructed by the author
             is given. The sensing element is made in the form of a glass
             rod with a diameter of up to 6 mm; the length of the working
Card 1/2   portion of the probe is 3 - 5 mm, its width is 1 mm. The

SOV/124-58-7-7767

A Universal Device for the Investigation of Turbulence (cont.)

frequency range of the device is from 2 cps up to 100 cps. Measurements
are possible with the aid of an oscillograph and a thermoammeter (for mea-
suring the mean square of the velocity pulsations). In order to afford a
means for investigating the detachment of vortices and the correlation coef-
ficient of the turbulent velocity components at two points the device is pro-
vided with two channels. Oscillograms of pulsations recorded in different
flows by means of the abovedescribed device are given. The moderate over-
all dimensions of the device make it particularly useful. Its universal applic-
ability makes it suitable for many aerodynamic experiments. According to
the author its cost is approximately 1/20 that of a hot-wire anemometer
with a comparable frequency range. Bibliography: 6 references.

Ye.M. Minskiy

1. Gas flow--Analysis 2. Gas flow--Turbulence   3. Turbulence--Measurement
4. Glow discharges--Applications

Card 2/2

KHAZEN, A.M.

137-1958-1-196

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 31 (USSR)

AUTHOR: Khazen, A. M.

TITLE: Electrical Discharge Methods of Measuring Gas-flow Velocities
            (Elektrorazryadnyye metody izmereniya skorostey gazovykh
            potokov)

PERIODICAL: Sb. statey nauchn. stud. o-va Mosk. energ. in-ta, 1957,
            Nr 10, pp 72-82

ABSTRACT: An analysis of electrical discharge methods for gas-flow
            velocity measurements is presented. Glow and corona discharges
            are compared on the basis of an analysis of a number of papers.
            The dependence of the conductance on the pressure in the case of
            a glow discharge is only 1/25 to 1/30 that of its dependence on
            the gas-flow velocity, whereas in a corona discharge these
            relationships are of the same order of magnitude. It is, there-
            fore, concluded that the glow discharge is more suitable.
                                                          A. Ch.

            1. Gas flow—Velocity—Measurement 2. Glow discharges—Effective-
            ness—Test results 3. Corona (Electricity)—Effectiveness—Test
Card 1/1   results

89002

9.8300

S/119/61/000/001/006/013
B019/B067

AUTHORS: Smirnov, V. I., Engineer, and Khazen, A. M., Engineer

TITLE: Magnetic Gas Discharge Commutator for Weak Currents

PERIODICAL: Priborostroyeniye, 1961, No. 1, pp. 15 - 17

TEXT: Mechanical commutators are not sufficiently reliable in remote
measuring systems and multipoint recorders. It is therefore necessary to
develop better commutators. In the magnetic gas discharge commutators
described, a magnetic block is used which is shown in Fig. 1. This block
consists of the oppositely connected coils 1 and 2 which are fed with
high-frequency current. The control coil 3 is fitted to the two cores
above coils 1 and 2. The output coil 4 is mounted above the other three
and simultaneously serves as backcoupling coil. In each of the core pairs
a magnetic field with different sign is generated by the high-frequency
current. If d. c. passes through the control coil an emf is generated in
the output coil, whose frequency is twice that in coils 1 and 2. Since
the supply voltages are applied only to the coils of one pair the output

Card 1/5

89002

Magnetic Gas Discharge Commutator   S/119/61/000/001/006/013
for Weak Currents   B019/B067

voltage is proportional to the input voltage only in one channel. A cold-
cathode thyratron is used for the commutation of the high-frequency
voltage. This thyratron at the same time serves as key element of the
commutator and as distributing element of the measuring channels. Fig. 2
shows the basic circuit of the commutator. M_1 is the magnetic field pick-

up, M_2 - M_6 are the magnetic blocks which are illustrated in Fig. 1.

Dp_1 are chokes. This circuit offers several advantages. Tube noise is
weakened by the backcoupling, temperature influences only little the
resonant frequency. The use of the above described magnetic blocks with
double output frequency required the use of one of the pick-ups as
magnetometers with double output frequency, which was directly connected
instead of one of the ring pairs. The use of the double output frequency
warranted a low threshold of sensitivity. Such a commutator with five
measuring points and one magnetic field pick-up was produced in the
laboratory. For this purpose permalloy cores 0.03 mm thick, with a cross
section of 0.5 mm^2, were used. Frequency must be considerably increased
to obtain especially quick operation. No reciprocal influence of the

Card 2/5

89002

Magnetic Gas Discharge Commutator   S/119/61/000/001/006/013
for Weak Currents   B019/B067

channels was observed. There are 4 figures and 2 Soviet references.
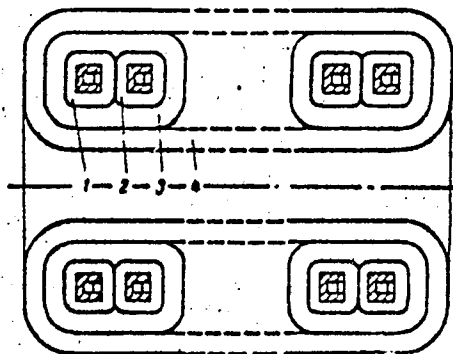

Рис. 1. Магнитный блок коммутатора.

и включены встречно; управляющая обмотка 3 наложена на
два сердечника поверх обмоток питания; выходная обмот-
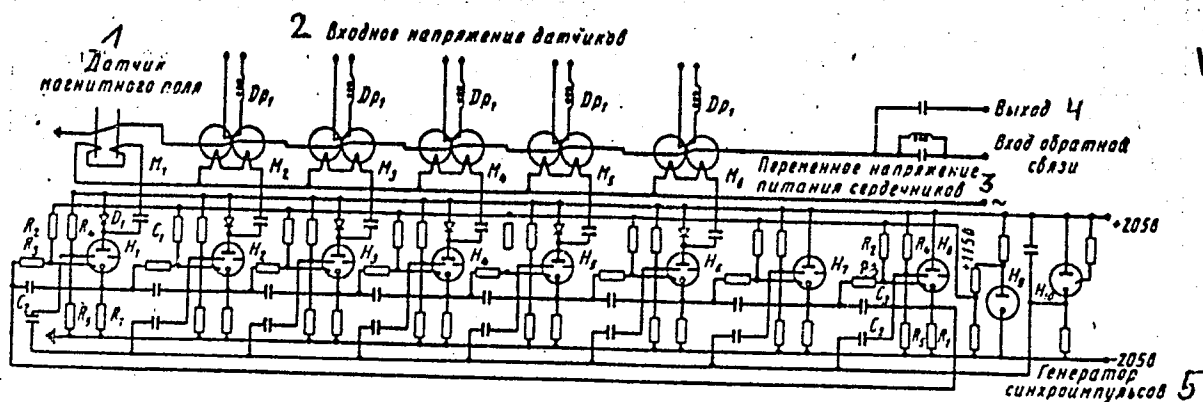
Card 3/5

89002

S/119/61/000/001/006/013
B019/B067

1 *Датчик магнитного поля*

2. *Входное напряжение датчиков*

Dp_1 Dp_1 Dp_1 Dp_1 Dp_1

H_1 H_2 H_3 H_4 H_5 H_6

Переменное напряжение питания сердечников 3

Выход 4
Вход обратной связи

+205в

-205в

Генератор синхроимпульсов 5

Рис. 2. Принципиальная схема магнитного газоразрядного коммутатора на шесть точек измерения, в том числе с датчиком магнитного поля. Тиратроны H_7 и H_8 служат для образования паузы и для такта в конце цикла измерения.

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S/119/61/000/001/006/013
B019/B067

Legend to Fig. 1: 1) and 2) High-frequency coil; 3) control coil;
4) output coil. Legend to Fig. 2: 1)Magnetic field pick-up; 2) input
voltage of the pick-ups; 3) a. c. for the cores; 4) output; 5) synchronous
pulse generator.

Card 5/5

24544

24.2500 (1538, 1057, 1109, 1395)   S/179/61/000/002/010/017
E032/E114

AUTHOR: Khazen, A.M., (Moscow)

TITLE: High frequency discharge in a moving gas

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
             nauk, Mekhanika i mashinostroyeniye, 1961, No. 2,
             pp. 112-113

TEXT: The present author considers a parallel plate capacitor
placed in a moving gas. A high frequency voltage is applied to the
plates of the capacitor. The distance between the plates, the gas
pressure, and the frequency of the impressed electric field, are
chosen so that the time of transit of an electron between the
plates under the action of the high frequency field is greater than
the half period of this field.   Free electrons are produced
throughout the discharge gap and their motion is determined by
the external field, the field due to the positive space charge and
their own field.   The system of equations giving the distribution
functions for the electrons (f_e), ions (f_i) and neutral molecules
(f_n) in the discharge plasma, is taken to be of the form:

Card 1/6

High frequency discharge in a moving gas

$$\frac{\partial f_e}{\partial t} + \frac{p}{m}\frac{\partial f_e}{\partial q} + eE_b\frac{\partial f_e}{\partial p} - \frac{\partial f_e}{\partial p}\cdot\frac{\partial}{\partial q}\int\frac{e^2}{|q-q'|}\left(f_e(q',\ p',\ t) - f_i(q',\ p',\ t)\right)dq'dp' =$$

$$= (k_{\text{ион}} - k_{\text{рек}})f_e + \iint (f_e'f_m' - f_ef_m)|v - v_m|\,2\pi p^0 dp^0 dv_m \qquad (1)$$

$$\frac{\partial f_i}{\partial t} + v\frac{\partial f_i}{\partial q} + e^*E_b\frac{\partial f_i}{\partial p} - e^*\frac{\partial f_i}{\partial p}\cdot\frac{\partial}{\partial q}\int\frac{e}{|q-q'|}(f_e - f_i)\,dq'dp' = (k_{\text{ион}} - k_{\text{рек}})f_e \quad (2)$$

$$\frac{\partial f_m}{\partial t} + v\frac{\partial f_m}{\partial q} = (k_{\text{рек}} - k_{\text{ион}})f_e \qquad \qquad (3)$$

In these equations m is the electron mass, e is the electron
charge, e* is the ion charge, E_b is the high frequency field
and v is the gas velocity.   It is assumed that inelastic
collisions are accounted for by the ionisation coefficient $k_{\text{ион}}$
and recombination coefficient $k_{\text{рек}}$.   It is assumed that the
electron temperature T_e is much greater than the ion
temperature T_i and that the gas pressure is such that the

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24544

High frequency discharge in a moving gas

collision term in Eq.(1) can be neglected, i.e. the behaviour of the electrons under the action of the gas stream is determined only by the ion space charge. Since the alternating field has a very high frequency the heavy positive ions are not affected by this field. Under the action of the gas stream, which is at an angle to the axis of the discharge gap, the ion space charge becomes deformed:

$$f_i(q, t) = \int f_i(q, p', t) \, dp'$$

and gives rise to the potential

$$\varphi_i(q, t) = \int \frac{e^*}{|q - q'|} f_i(q, p', t) \, dq' \, dp'$$

The electron distribution function in Eq.(1) is then expanded into the series

$$f_e(q, p, t) \approx f_0(q, p, t) + \frac{p}{p} f_1(p, q, t) + \dots$$

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24544

S/179/61/000/002/010/017
E032/E114

High frequency discharge in a moving gas

Since the velocity of the electrons in the high frequency field is much greater than their velocity under the action of the space charge alone, it follows that the electron distribution function depends largely on the modulus of the velocity vector and the above expansion is justifiable. Substituting into Eq.(1), it is found that

$$\frac{\partial f_1}{\partial t} + p \ grad_q \ f_0 + \frac{e(E + E_b)}{m} \ \frac{\partial f_0}{\partial p} = - \ \nu(p) \ f_1 \qquad (4)$$

where

$$E = - \ grad_q \int \frac{e}{q - q'} \ \{f_e(q', \ p', \ t) - f_i(q', \ p', \ t)\} dq' dp'$$

It then follows that

$$\frac{p}{m} \ \frac{\partial f_0}{\partial q} + \frac{eE}{m} \ \frac{\partial f_0}{\partial p} = (k_{ион} + k_{рек}) \ f_e \qquad (5)$$

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S/179/61/000/002/010/017
E032/E114

High frequency discharge in a moving gas

The intensity of the high frequency field does not enter into Eq.(5) since a time average is being taken. This equation can be solved by the method of successive approximations. Assume

$$E = -\text{grad}_q \, \varphi(q, t)$$

and consider the plane section

$$\varphi(x, y, z, t) = \varphi(y, t).$$

The first term of the expansion is

$$f_0 = e^{-\frac{p^2}{2} - \varphi(q)}$$

and this gives the electron distribution function in the discharge gap. Using Eq.(4), the second function in the above expansion for f_e is found to be

$$\frac{1}{\nu(p)} \frac{\partial f_1}{\partial t} + f_1 = -\frac{eE_b}{m} \frac{\partial f_0}{\partial p} = -\frac{pE_b}{\nu(p)} \frac{\partial \varphi(y)}{\partial y} \exp\left(-\frac{p^2}{2} - \varphi(y)\right)$$

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S/179/61/000/002/010/017
E032/E114

High frequency discharge in a moving gas

and the electron current is given by:

$$ j = \frac{4\pi e}{3} \int_0^\infty \frac{p^3}{m^3} f_1 \frac{dp}{m} $$

Experiments with artificially produced space charge asymmetry in neon at pressures of a few tenths of mm Hg and frequencies of the order of 50 Mc/s per sec showed the presence of a constant current component reaching a few milliamps. The sign and magnitude of this current depend on the asymmetry of the space charge. There are 3 Soviet references.

SUBMITTED: November 2, 1960

Card 6/6

33256
S/632/60/000/019/006/009
D053/D113

10.1500

26.4100

AUTHOR: Khazen, A.M.

TITLE: Application of high-frequency electric discharge in aerodynamic investigations

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promyshlennaya aerodinamika, no. 19, 1960. Izmereniye vozdushnykh potokov, 62-67.

TEXT: Design and operational analysis of an anemometer using a high-frequency glow discharge as the sensing element is given. The anemometer circuit (Fig. 4) consists of (1) a high-frequency generator, (2) an output transformer, (3) a discharger, (4) a high-frequency voltmeter, and (5) a milliammeter. The gas-flow velocity in the gap between the electrodes is determined by the voltage with the high-frequency voltmeter (4) connected across the discharger. The deflection angle of the flow velocity from a plane perpendicular to the discharger axis is proportional to the d-c component flowing in the output circuit. This d-c component is measured either by the milliammeter (5), or by an oscilloscope loop, shunted for high frequencies. An operational
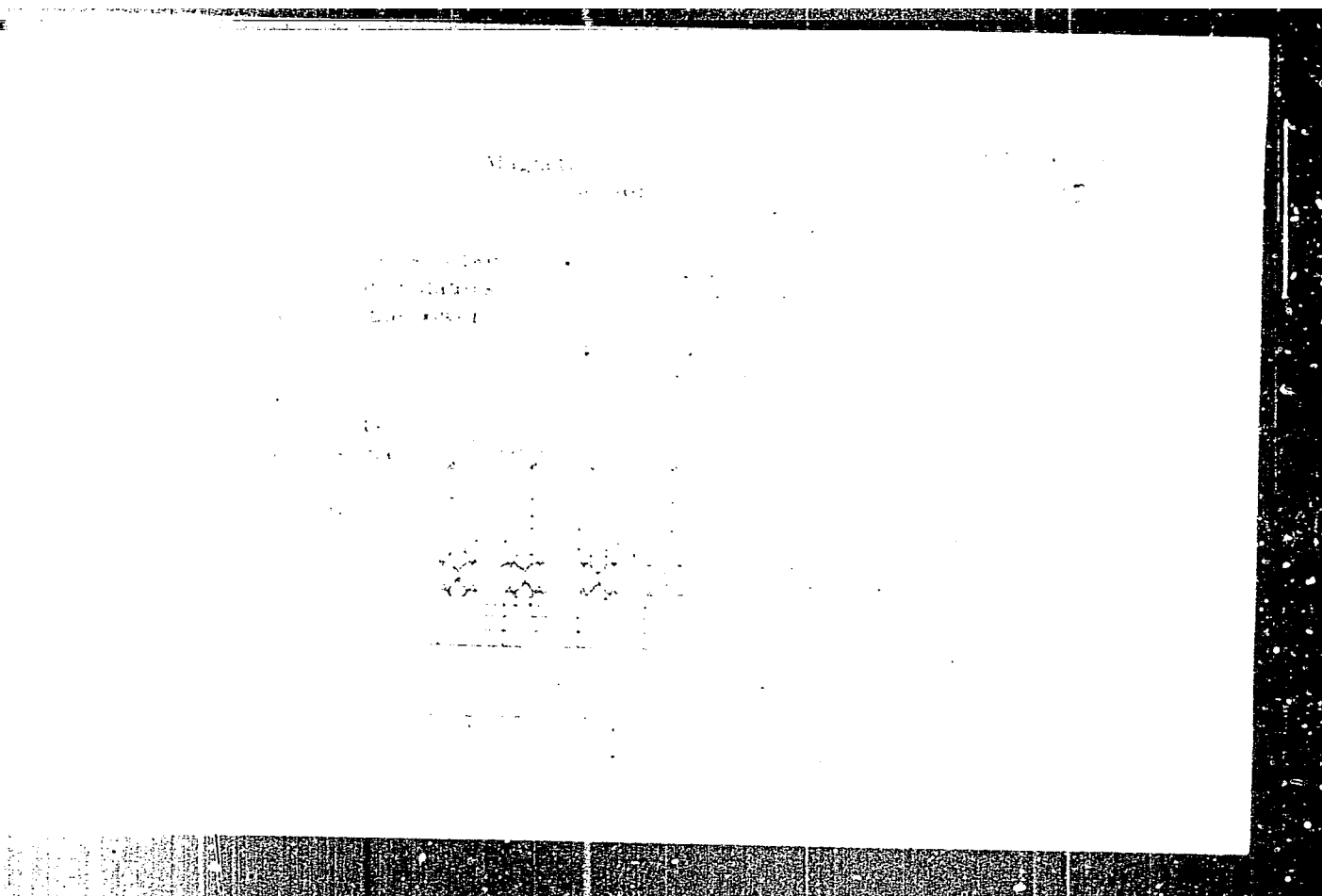
Card 1/3

KHAZEN, A.M., kand. fiz.-mat. nauk

Using magnetic cells for commuting low-level signals in
multiple-point control systems. Priborostroenie no.12:
9-11 D '65.   (MIRA 19:1)

L 17922-66   EWT(1)/EWA(h)   GG
ACC NR AP5 01189   /A   SOURCE CODE

Franzen A M (Candidate of physical

TITLE: Using magnetic elements for low-level signal switching in multipoint
        systems

SOURCE: Priborostroyeniye, no. 12, 1965, 9-11

TOPIC TAGS: magnetic element, ferrite switch

ABSTRACT   The distinguishing features of magnetic elements operating as weak-
        and converters are specified. Operation of the magnetic element
        considered. Windings of the element
        operate as a nullset
        compensate for even harmonics
        supply-frequency rejecting   supply to 5.
        verts the magnetic element into a switch. A matrix comprising 8 such

Card 1/2   UDC: 621.316.3:538.245:681.17

L 17542-66

.. .R AP5001189

. ...ements operates as a digitizer
. .. .. .ls coming from 27 sensors.
... e. this type of matrix converter is
.. ..mended for connecting a system of
...astr...-process-monitoring sensors to
a digital computer. Orig. art. has:
3 figures and 1 formula.
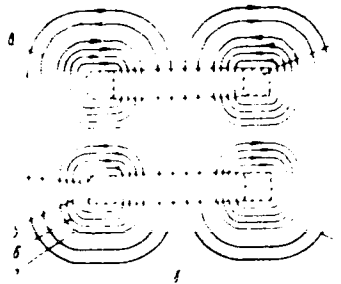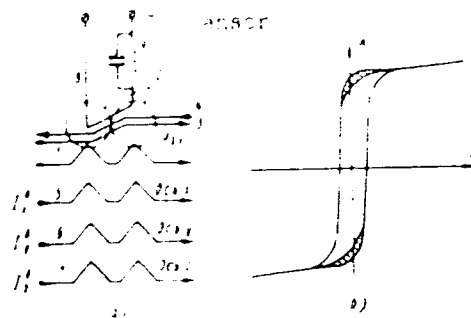
Magnetic ... ... ment of a matrix-type switch.

S.JB C.J.E. 09 / SUBM DATE: none / ORIG REF.)06

Card 2/2

ACC NR: AP6032164   SOURCE CODE: UR/0410/66/000/004/0055/0068

AUTHOR: Khazen, A. M. (Moscow)

ORG: none

TITLE: Design problems in systems for switching and converting low-power dc current signals into equivalent digital signals

SOURCE: Avtometriya, no. 4, 1966, 55-68

TOPIC TAGS: analog digital converter, magnetic circuit, computer switching, ferromagnetic film, binary code, direct current, current amplifier

ABSTRACT: The author describes a system for measuring low-amplitude currents from eight channels and coding them in binary code. The input multiplex switching unit may employ either ferromagnetic tape cores or thin films (see Fig. 1). These amplify the low-current signals with almost no zero drift (the threshold for a $5-\mu$amp signal is constant even when the ambient temperature varies by as much as 100C). The elements were carefully studied before incorporating them into the system, as at increased commutating speed when the bias frequency is increased (by up to a few Mc/sec) the depth of penetration equals the core thickness, and undesirable effects may arise. The commutator can measure 10 to 100 current samples per second. The multiplex unit output is applied to the A/D converter (Fig. 2), which uses magnetic elements

Card 1/4 ·   UDC: 681.142.621+621.317.39
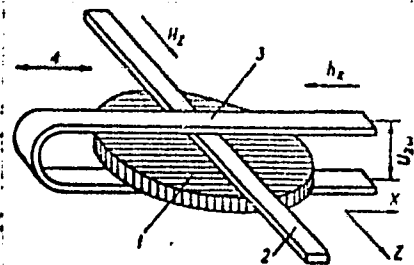
ACC NR: AP6032164

Fig. 1. Ferromagnetic film element

1 - Film; 2 - bias and inhibit line; 3 - control and output line; 4 - direction of aniso-tropy axis.

similar to those used in the multiplexing unit. Each element has two cores with bias (1), inhibit (2), control (3), reference-current (4 and 5), and output windings (6). The output winding from each element is connected to a diode (7) and a bias signal second harmonic
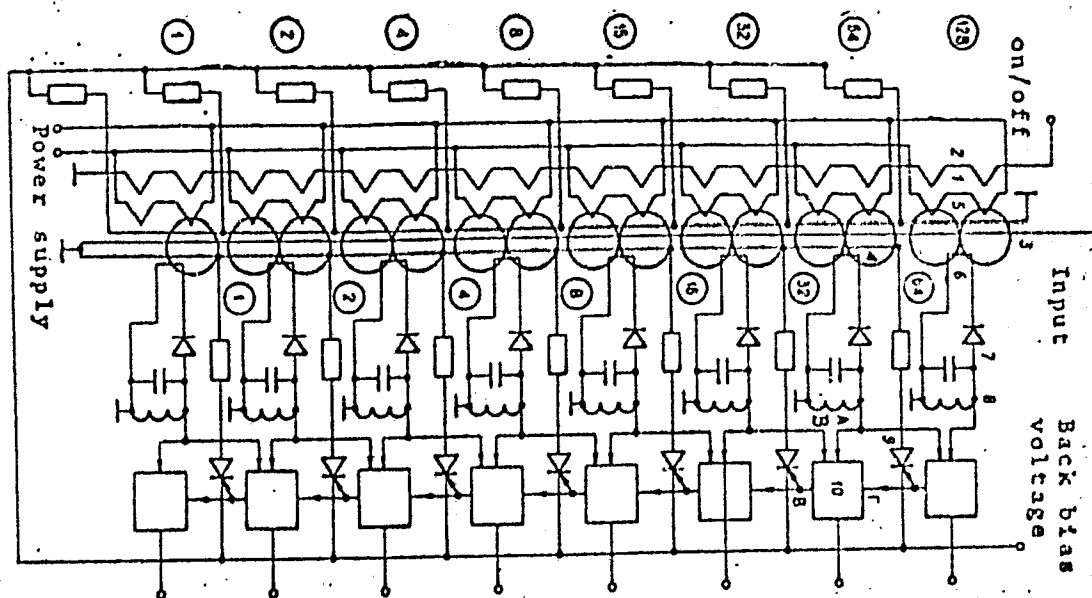
Card 2/4

ACC NR: AP6032164

Fig. 2.   Analog-to-digital converter

Digital output

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ACC NR: AP6032164

trap circuit (8). The output digital signal is issued from NAND
gates (10) which work in conjunction with four-layer diodes (9). The
author thanks Academician G. I. Petrov for many valuable suggestions.
Orig. art. has: 25 formulas and 8 figures.

SUB CODE: 09/ SUBM DATE: 28Oct65/ ORIG REF: 008/ OTH REF: 001

Card 4/4

ACC NR: AP7001582   SOURCE CODE: UR/0421/66/000/006/0129/0134

AUTHOR: Panov, Yu. A. (Moscow); Shvets, A. I. (Moscow); Khazen, A. M. (Moscow)

ORG: none

TITLE: Investigation of base pressure fluctuations behind a cone in supersonic flow

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 6, 1966, 129-134

TOPIC TAGS: supersonic aerodynamics, supersonic flow, base pressure, pressure gage, pressure measurement, pressure transducer, wake flow

ABSTRACT: A detailed description is presented of a highly accurate experimental investigation of the base pressure fluctuations behind a cone of semi apex angle of 10° with aft section diameters d = 100, 130 and 150 mm in supersonic flow of M = 3. A specially designed pressure sensor was used for measuring base pressure fluctuations which uses the dependence of corona discharge parameters in a gas upon pressure. Its construction, operation and calibration are described in detail. The level of noise background of the experimental tube was measured in order to compare it with output signal of the pressure sensor, and the oscillations of the model were recorded by N-102 oscillograph with the aid of two strain gages fastened on model supports. Oscillographic recording of the base pressure fluctuation spectra are presented for the model with base of 150 mm in diameter at pressure of 5 atm, and show that the amplitude of fluctuations and frequency range increase with cone diameter. The same

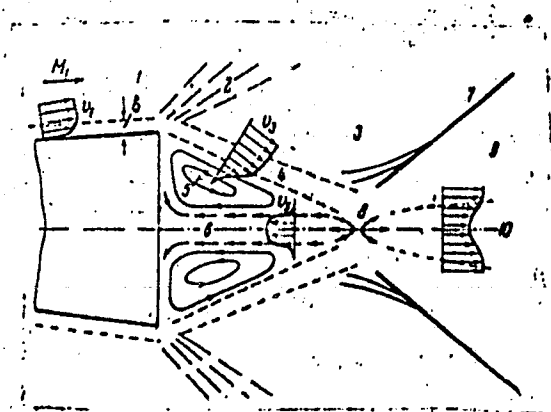Card   1/3

ACC NR: AP7001582

Fig. 1. Flow configuration

1 - Outer flow; 2 - Prandtl-Mayer flow region;
3 - outer flow in the base region; 4 - boundary
stagnation zone; 5 - toroidal vortex; 6 - axi-
symetric flow; 7 - tail shocks; 8 - stagnation
point in the wake throat; 9 - outer flow behind
tail shocks; 10 - turbulent wake.

pattern can be observed with increasing pressure in the mixing region. The amplitude
maxima are obtained at frequencies higher than 100C, that is, they do not coincide
with oscillation frequencies of the model (40—50 c). In order to throw more light
on the behaviour of the flow in the base region, the flow structure behind the cone
base was investigated with the aid of plates coated with a luminescent paint.
The presence of an axisymmetric reverse flow coming from the wake throat to the cone
base and a toroidal vortex flow occupying the region between reverse flow and dividing

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ACC NR: AP7001582

streamline (see Fig. 1) is discussed. The causes of high and low-frequency fluctuations of base
pressure are analyzed and tentatively explained. Assumption is made that the total
head in the reverse flow is proportional to the dynamic head of the outer flow in
region 3   which ejects the gas from the stagnation region. The dynamic head in
this region, in turn, is directly proprotional to the pressure head of the free flow.
Consequently the total energy and maximum amplitude of base pressure fluctuations
should be proportional to the dynamic head of the free flow. It is said in the con-
clusion that the spectrum of the base pressure fluctuations represents a very com-
plex superposition of a series of harmonic fluctuations. Orig. art. has: 7 figures.
[AB]

SUB CODE: 20/ SUBM DATE: 26Jul66/ ORIG REF: 004/ OTH REF: 007/
ATD PRESS: 5110

Card   3/3

Khazen, A.M.; Shuvalov, V.A.

Research Institute of Mechanics, Moscow (Nauchno-issledovatel'skiy institut mekhaniki)

Measurement of properties of a partially ionized gas with a hot-wire anemometer

Zhurnal tekhnicheskoy fiziki, v. 36, no. 2, 1966, 377-383

plasma diagnostics, rarefied plasma, plasma jet, plasma flow, plasma electron temperature, plasma ion temperature, plasma neutrals temperature, plasma probe, anemometer

It is proposed that a thin wire or rod be used simultaneously as a Langmuir probe anemometer in plasma diagnosing. The theory of the instrument is ... wire that if the head ... both large compared with the ... temperature, the ion temperature, the ... concentration, and the flow rate ... wire perpendicular to the flow and with the wire parallel ... was tested by measuring the characteristics of a jet of helium plasma in a high frequency discharge at 0.2 mm Hg. At 15 mm ... 9 mm diameter

UDC: 537.562

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... molybdenum wire was used. The wire was connected to a bridge with which its
... measured with an accuracy of ... ... bridge and its power supply
... maintained ...
... flow rate ...

... the measurements are regarded ... ...
... improve, particularly in regard to the determination of the ion temperature.
... ... thank. G.I.Petrov for his interest in the work. Orig. art. has: 26 formu-
... figure, and 1 table.

S JB CODE: 20/   SUBM DATE: 08Feb65/   ORIG REF: 001/   OTH REF: 004

06483

AUTHOR: Khazen, E.M.   SOV/141-1-5-6-27/28

TITLE: A Highly Selective Tuned Filter for Operation at Ultra-low
           Frequencies

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
           1958, Vol 1, Nr 5-6, pp 185 - 187 (USSR)

ABSTRACT: The use of LC resonant circuits as filters at very low
           frequencies is unsatisfactory since it is difficult to
           obtain inductances with sufficiently high Q-factors. The
           problem may be solved by connecting the resonant circuit
           into the feedback path of an amplifier. A system of this
           type is represented by the block schematic of Figure 1.
           Its transfer function is represented by Eq (2), where
           Z_K is the impedance of the circuit, K is the gain of
           the amplifier, β_1 and β_2 are the negative and positive
           feedback coefficients and R_{BX} is the input resistance
           of the system. The schematic of Figure 1 was used to
           construct a filter. A detailed circuit diagram of this is
Card1/2   shown in Figure 2. The resonant curves of the LC circuit

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used in the filter are illustrated by the lefthand side
curves of Figure 3; the selectivity characteristics of the
filter (at the same frequencies) are represented by the
righthand side curves in the figure. It was found that the
quality factor at the frequency of 0.1 c.p.s. was about 50,
while at 1 c.p.s. it was 200. The work described was carried
out at the Laboratoriya kafedry obshchey fiziki dlya
mekhaniko-matematicheskogo fakul'teta MGU (Laboratory of
the Chair of General Physics of the Moscow State University)
and was directed by Yu.M. Romanovskiy.
There are 3 figures and 2 Soviet references, 1 of which is
translated from English.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: May 24, 1958

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23155

S/024/61/000/003/003/012
E140/E463

/6. 6/00

AUTHOR: Khazen, E.M. (Moscow)

TITLE: Determination of probability distribution density for random processes in systems with piecewise-linear nonlinearities

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.3, pp.58-72

TEXT: Markov processes are first reviewed, using the Brownian movement to obtain the A.N.Kolmogorov equation for diffusion processes.   Examples are then given from white noise and stationary Gaussian processes with spectral densities described by rational fractions.   The author then proceeds to examine nonlinear systems with random forces, using the phase-plane method. The behaviour of the system is described in terms of the probabilistic behaviour of a particle flux in the phase-plane. At each boundary of discontinuity in the phase-plane the particle flux through the boundary and the probability density at the boundary are assumed to be continuous, which gives a basis for the solution on the basis of the equation of continuity.   The method
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reduces the problem to a system of linear integral equations of
the Volterre and Fredholm types of the second kind.   These can be
solved by successive approximations or by Ritz's method of
moments, which reduces to the solution of a set of linear
algebraic equations.   The method is illustrated by the examples of
a linear detector subject to white noise and a simple closed loop
system with relay characteristic in the feedback circuit, also
subject to white noise.   There are 11 figures and 15 references:
13 Soviet-bloc and 2 non-Soviet-bloc.   The reference to the
English language publication reads as follows: Dressel, Duke.
J.Math., vol.7, p.186, vol.13, p.61.

SUBMITTED: October 12, 1960

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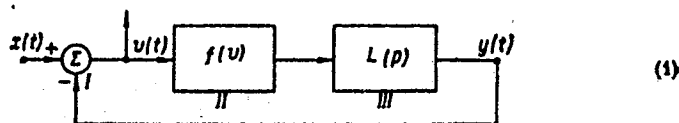S/052/61/006/001/005/005
C 111/ C 333

AUTHOR: Khazen, E. M.

TITLE: Determination of the unidimensional distribution density
           and of the moments of the random process on the output
           of an essentially nonlinear system

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, v. 6, no. 1,
           1961, 130-138

TEXT: The author considers the following system

(1)

where $x(t)$ -- random process, $L(p) = \dfrac{Q_m(p)}{P_n(p)}$, Q_m and P_n -- polynomials

of degrees m and n, $p \equiv \dfrac{d}{dt}$, II a nonlinear inertialess term which is

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described by an (m+2)-times differentiable function $f(v)$ and
$v(t) = x(t) - y(t)$. Assume that

$$x(t) = \begin{cases} 0, & t \leq t_o \\ m(t) + \xi(t), & t > t_o \end{cases}$$

where $m(t)$ is a given function and $\xi(t)$ a stationary Markov process
with fractional-rational spectral density.

The unidimensional distribution density and the moments of $v(t)$ are
sought.

If $x(t)$ is n-times differentiable, then it holds

$$P_n(p) \, v(t) = P_n(p) \, x(t) - Q_m(p) \, f\left[v(t)\right] \qquad (4).$$

$v(t)$ can be understood as component of a multidimensional Markov process.
Let the spectral density of $x(t)$ be

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$$f_x(\lambda) = \frac{1}{2\pi} \frac{\left|(i\lambda)^s + \beta_1(i\lambda)^{s-1} + \ldots + \beta_s\right|^2}{\left|(i\lambda)^k + \alpha_1(i\lambda)^{k-1} + \ldots + \alpha_k\right|^2} \quad , \quad k > n + s$$

Then, according to J. L. Doob (Ref.7: The elementary Gaussian processes, Ann. Math. Stat., 15 (1944), 229-282) it holds

$$d\eta^{(0)} = \eta^{(1)} dt ;$$
$$\ldots \ldots \ldots \ldots \ldots$$
$$d\eta^{(k-2)} = \eta^{(k-1)} dt;$$
$$d\eta^{(k-1)} = \left[-\alpha_1 \eta^{(k-1)} - \alpha_2 \eta^{(k-2)} - \ldots - \alpha_k \eta^{(0)}\right] dt + d\zeta(t);$$
$$x(t) = \eta^{(s)} + \beta_1 \eta^{(s-1)} + \ldots + \beta_s \eta^{(0)} ;$$

(5)

where $\zeta(t)$ is a Wiener process. In (4) one can replace $x(t)$ and

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$P_n(p)$ x(t) by the linear combinations of $\eta^{(0)}, \ldots, \eta^{(n+s)}$. Then (4)
and (5) give a system of equations of first order for v(t).

If $P_n(p) = b_0 + b_1 p + \ldots + b_{n-1} p^{n-1} + 1$ and $Q_m(p) = a_0 + a_1 p + \ldots$

$\ldots + a_m p^m$, v(t) = y_1, $P_n(p)$ x(t) = $\sum\limits_{k=0}^{n+s} d_k \eta^{(k)}$, then one obtains:

$dy_1 = y_2 dt$;

$\circ \circ \circ \circ \circ \circ \circ \circ \circ$

$dy_{n-2} = y_{n-1} dt$;

$dy_{n-1} = \left[- b_0 y_1 - b_1 y_2 - \ldots - b_{n-1} y_n + a_0 f(y_1) + a_1 \dfrac{df(y_1)}{dy_1} y_2 + \right.$

$\left. + a_2 \dfrac{d^2 f(y^2)}{dy_1^2} (y_2)^2 + a_2 \dfrac{df(y_1)}{dy_1} y_3 + \ldots + \sum\limits_{k=0}^{n+s} d_k \eta^{(k)} \right] dt$;

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Determination of the unidimensional ... $\begin{array}{l} S/052/61/006/001/005/005 \\ C\ 111/\ C\ 333 \end{array}$

$$d\,\eta^{(0)} = \eta^{(1)}\,dt;$$

$$\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ\,\circ$$

$$d\,\eta^{(k-1)} = \left[-\alpha_1\,\eta^{(k-1)} - \alpha_2\,\eta^{(k-2)} - \ldots - \alpha_k\,\eta^{(0)}\right]dt + d\,\zeta\,(t)$$

or in more general form

$$dy_i = F_i(y_1,\ldots,y_N)dt + a_i\,d\zeta\,(t)\quad (i = 1,2,\ldots,N)\ . \qquad (6)$$

By (6) a Markov process $(y_1(t),\ldots,y_N(t))$ is defined. If the F_i satisfy the Lipschitz condition, then almost all sampling functions of $(y_1(t),\ldots y_N(t)$ are continuous. If all F_i are so that the derivatives

$$\frac{\partial F_i(y_1,\ldots,y_N)}{\partial y_k}\qquad i,k = 1,\ldots,N) \qquad\qquad (7)$$

exist, are bounded and satisfy the Lipschitz condition, then the

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distribution density of the probabilities $P(y_1, ..., y_N; t)$ of the process $(y_1(t), ..., y_N(t))$ satisfies the Kolmogorov equation

$$\frac{\partial P(y_1, ..., y_N; t)}{\partial t} + \sum_{k=1}^{N} \frac{\partial}{\partial y_k} [F_k \cdot P] = \frac{1}{2} \sum_{i,j=1}^{N} a_i a_j \frac{\partial^2 P}{\partial y_i \partial y_j}. \quad (8)$$

For determining the stationary distribution it must be put $\frac{\partial P}{\partial t} = 0$.
If the F_i are piecewise smooth, then P satisfies the equation (8)
in each domain in which the F_i satisfy the condition (7). The condi-
tions on the boundaries of the domains are obtained from the re-
quirements 1.) $P(y_1, ..., y_N, t)$ is continuous for all $(y_1, ..., y_N)$,
2.) for every Ω

$$-\frac{d}{dt} \int ... \int P(y_1, ..., y_n; t) \, d\Omega = \int_S ... \int \varphi_n \, dS_n \quad (9)$$

is satisfied; S--boundary of Ω, dS_n -- surface element with the

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normal $\vec{n}$, φ_n -- density of the flow P in the direction $\vec{n}$. For the density of the flow in the direction y_i it follows:

$$\varphi_{y_i} = F_i P - \frac{1}{2} \sum_{j=1}^{N} a_i a_j \frac{\partial P}{\partial y_j} \qquad (i = 1,2,\ldots N)$$

Two examples are considered. In the first example it is $L(p) = \frac{1}{Tp+1}$ and $f(v)$ is a saturation line consisting of three straight pieces. In the second example the author considers a somewhat deviating scheme
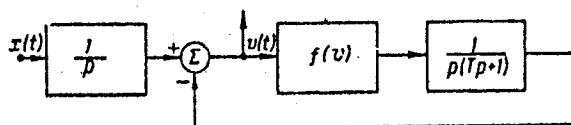
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where $f(v) = \begin{cases} 1, & v \geq 1; \\ v, & |v| < 1; \\ -1, & v \leq -1. \end{cases}$

In the first example it is $m(t) = m$ and $f_j(\lambda) = \dfrac{\lambda_0}{\sqrt{\pi}} \left| \dfrac{1}{1+i\lambda T} \right|^2$.

The system of example 1 was statistically linearized, and the dispersion and mean value obtained from the linearized system were compared with the calculation according to the rigorous method. The following table shows the results

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λ_o	m	mean value		dispersion	
		rigorous method	method of statist. linearization	rigorous method	method of statist. linearization
0.5	0.5	0.2500	0.2500	0.0208	0.0208
	1.5	0.7485	0.7490	0.0195	0.0193
	2.0	0.9522	0.9520	0.00635	0.0066
1	0.5	0.2500	0.2500	0.08268	0.0833
	1.5	0.7284	0.7360	0.0591	0.0670
	2.0	0.9047	0.9070	0.02539	0.0267
2	0.5	0.2333	0.2360	0.2778	0.2790
	1.5	0.6527	0.6590	0.1725	0.1770
	2.0	0.8090	0.8140	0.1019	0.1060
5	0.5	0.1503	0.1540	0.6666	0.6770
	1.5	0.4316	0.4430	0.5443	0.5530
	2.0	0.5563	0.5670	0.4594	0.4600

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10	0.5	0.0947	0.0898	0.8364	0.8790
	1.5	0.2582	0.2650	0.8083	0.8210
	2.0	0.3371	0.3490	0.7446	0.7620

The author mentions Kazakov. He thanks Andrey Nikolayevich
Kolmogorov for the guidance.

There are 7 figures, 1 table, 2 Soviet-bloc and 8 non-Soviet-bloc
references. The four references to English-language publication read as
follows: V. Feller, K teorii stokhasticheskikh protsessov [On the
theory of stochastic processes], UMN, V (1938), 57-96; Dressel, Duke
Math. Journal, 7 , 186; 12, 61; J. L. Doob, The elementary Gaussian
processes, Ann.Math.Stat., 15(1944),229-282; J. L. Doob, Veroyatnostnyye
protsessy [Stochastic processes] , J. L, M, 1956.

SUBMITTED: November 18, 1959

Card 10/10

KHAZEN, E.M. (Moscow)

Determining the one-dimensional density of the distribution and moments
of a random process on the output of an essentially nonlinear system.
Teor. veroiat i ee prim. 6 no.1:130-138 '61.   (MIRA 14:6)
                    (Probabilities)

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                                             C111/C222

AUTHOR: Khazen, E.M.

TITLE: Determination of the density of the probability for random
           processes in systems with non-linearities of a piecewise
           linear type

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, v.6, no.2, 1961,
                                              234-242

TEXT: The author considers systems of stochastic differential equations

$$dy_i = F_i(y_1,\ldots,y_n,t)dt + \sum_{j=1}^{n} a_{ij}d\zeta_j(t), \quad i = 1,2,\ldots,n , \quad (1)$$

where $\zeta_j(t)$ are independent Wiener processes, or equations

$$\frac{dy_i}{dt} = F_i(y_1,\ldots, y_n, t) + \sum_{j=1}^{n} a_{ij}\xi_j(t) , \quad i = 1,2,\ldots,n ,$$

where $\xi_j(t)$ are Gaussian "white noise" processes. The functions F_i are
piecewise linear, the a_{ij} are piecewise constant.

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